



installation instructions

**ACCESSORY MOTORMASTER® I
HEAD PRESSURE CONTROLLER**
P/N 307183-101 AND 307183-102

**542J150,180
551A/581A155,180
559F/579F180,216**

Cancels: IIK 551A-155-1

IIK 542J-150-2
6/15/96

IMPORTANT — READ BEFORE INSTALLING

1. This installation instruction is intended for use **ONLY ON** units with 3 outdoor fans.
2. Read and become familiar with installation instructions before installing accessory single-phase, variable speed head pressure controller.
3. Be sure the installation conforms to all local and national codes.
4. Open, lock, and tag unit electrical disconnect switch before installing head pressure controller.

PACKAGE CONTENTS

| ITEM | QUANTITY |
|--|----------|
| Head Pressure Control Assembly with Attached Sensor Assembly | 1 |
| No. 10 Sheet Metal Screw | 4 |
| Star Lockwasher | 4 |
| 3/4-in. Lg, 4-40 Screw | 2 |
| Plate Washer | 2 |
| 4-40 Nut | 2 |
| Wirenut | 2 |

NOTE: The 208/230-v head pressure control device is rated at 8 amps (307183-101), and the 460-v head pressure control device is rated at 4 amps (307183-102).

SAFETY CONSIDERATIONS

Installation, start-up, and servicing of this equipment can be hazardous due to system pressures, electrical components, moving parts, and equipment location.

Only trained, qualified installers and service mechanics should install, start up, and service this equipment. Untrained personnel can perform such basic maintenance functions as cleaning coils or replacing air filters. All other operations should be performed by trained service personnel only.

When working on equipment, observe precautions in literature; tags, stickers, and labels attached to equipment; and any other safety precautions that apply. Follow all safety codes, and wear safety glasses and work gloves. Use care in handling, rigging, and setting bulky equipment.

⚠ WARNING: Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could result in personal injury.

INTRODUCTION

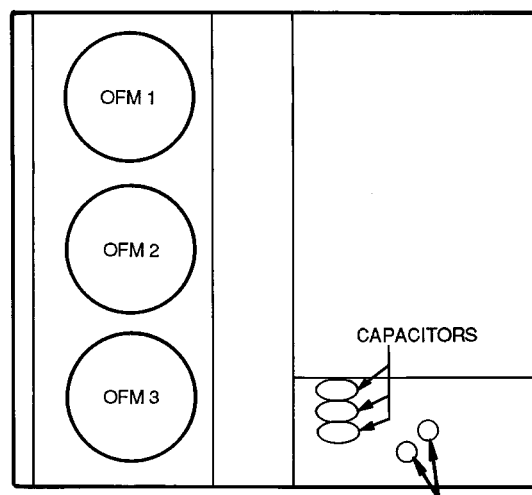
IMPORTANT: This installation instruction is intended for use **ONLY ON** units with 3 outdoor fans.

The solid-state head pressure control is a fan speed control device actuated by a temperature sensor. It is specifically designed for use on Bryant, Day & Night, and Payne equipment and controls the outdoor-fan motor speed in response to the saturated condensing temperature. For outdoor

temperatures down to -20 F, it maintains condensing temperature at 100 F \pm 10 F.

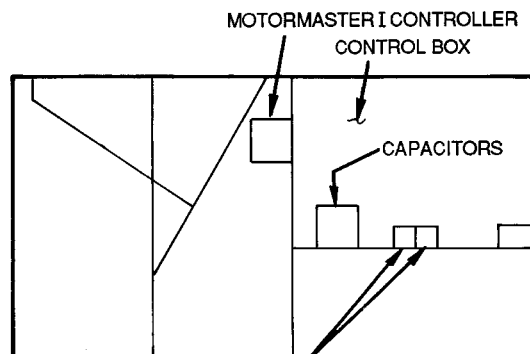
On units with 3 outdoor fans, the head pressure controller must be used in conjunction with the accessory 0° F low-ambient kit (part no. 389221-701 on 551A, 559F, 579F, 581A units; part no. CRLOWAMB001A00 on 542J units). The head pressure control device controls outdoor-fan motor no. 1 (see Fig. 1) while condenser-fan motors no. 2 and no. 3 are sequenced off by the temperature switches in the accessory 0° F low-ambient kit.

IMPORTANT: All units must be modified for winter start control. See instructions included with the accessory winter start control for more details.



LOW AMBIENT KIT TEMPERATURE SWITCHES

TOP VIEW



LOW AMBIENT KIT
TEMPERATURE SWITCHES

SIDE VIEW

OFM — Outdoor-Fan Motors

**Fig. 1 — Outdoor Fans and Motormaster I
Controller Locations**

The head pressure control consists of a solid-state circuit on a printed circuit board in an aluminum extrusion (to be fastened to a panel of the unit) and a sensor assembly (to be mounted to a return bend on the unit outdoor coil). A wire from the sensor is connected to the circuit board control box with wirenuts.

The head pressure control is available in two 1-hp models; one is rated at 208/230 v; the other at 460 v.

BEFORE INSTALLING

Inspect the contents of this accessory package before installing. File a claim with the shipper if contents are damaged or parts are missing.

Parts necessary for mounting control and sensor are included in the package. If sensor assembly is damaged, it can be replaced separately.

The head pressure control maintains the proper head pressure at any outdoor ambient temperature down to -20 F on the 542J150,180; 551A/581A155,180; and 559F/579F180,216 units with 3 condenser fans. No field adjustments or calibrations are required.

INSTALLATION

I. INSTALL WIND BAFFLES

Wind baffles must be field fabricated for all units to ensure proper cooling cycle operation at low outdoor-ambient temperatures. See Fig. 2 for baffle details. Use 20-gage galvanized sheet metal or similar corrosion-resistant materials for the baffles.

⚠ CAUTION: Use extreme care when drilling screw holes and screwing in fasteners near outdoor coil to avoid damage to tubing.

Use field-supplied screws to attach baffles to the unit. Screws should be 1/4-in. diameter or larger. Drill required screw holes for mounting baffles.

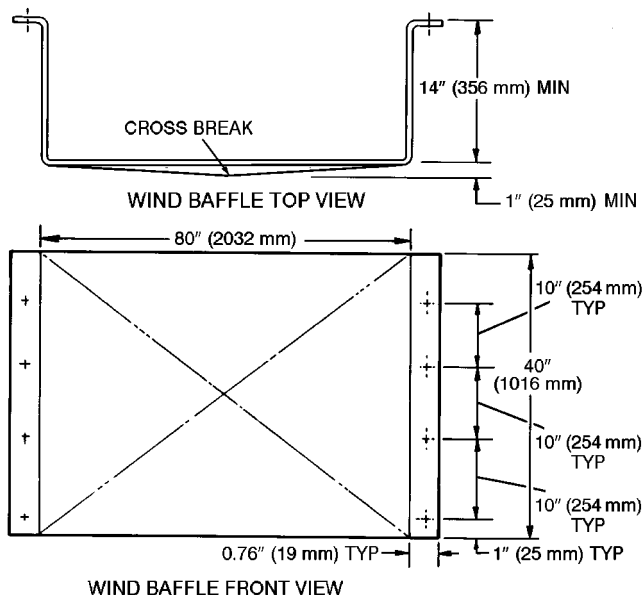


Fig. 2 — Wind Baffle Detail

II. MOUNT CONTROL

1. Turn off power to unit.
2. Open control box. Using a voltage meter, check that no power is present at unit terminal block.
3. Remove panel next to control box. Locate space for head pressure controller above electric heat fusing box (if so equipped) near outdoor fan and compressor wiring harness. Remove template from back of these instructions and tape to panel. Drill pilot holes as indicated.
4. Fasten control assembly to unit with four no. 10 sheet metal screws provided. To ensure electrical ground to chassis, insert a star lockwasher (provided) under the head of each screw.

NOTE: When properly positioned (wall mounted vertically with leads protruding from bottom of extrusion), control is weathertight.

III. MOUNT SENSOR ASSEMBLY

1. Remove outdoor air section access panel on control box side of unit and corner post on hairpin end of outdoor coil.
2. Route sensor wire through partition wall into outdoor section.
3. Mount sensor on an outdoor coil hairpin bend as shown in Fig. 3 or 4.
4. Secure sensor on coil hairpin bend with the 2 factory-supplied no. 4-40 screws, plate washers, and 4-40 nuts.
5. Coil up unused sensor wire and secure it near sensor or next to controller.
6. Protect sensor wire from physical damage or wind movement as necessary.

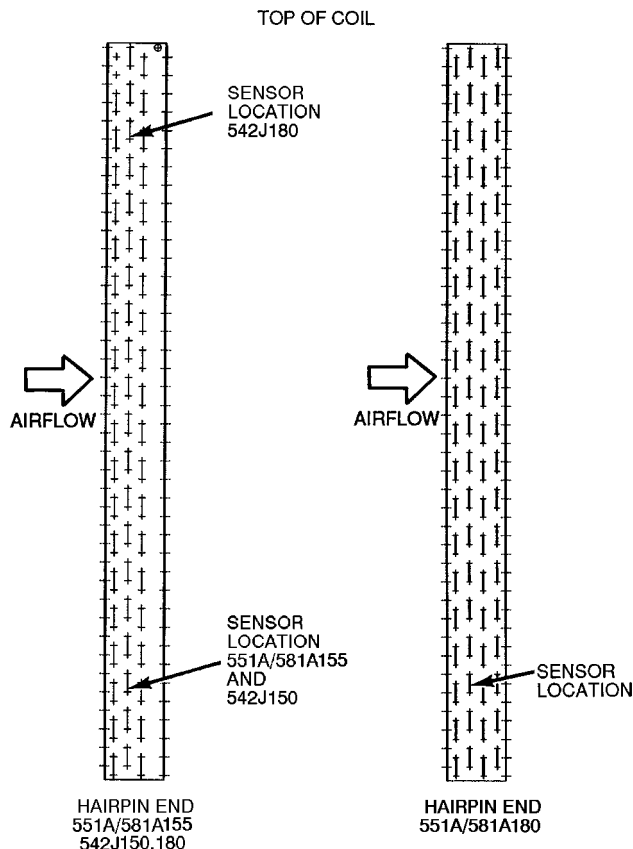


Fig. 3 — Sensor Location on Condenser Coil, 542J, 551A, and 581A Units

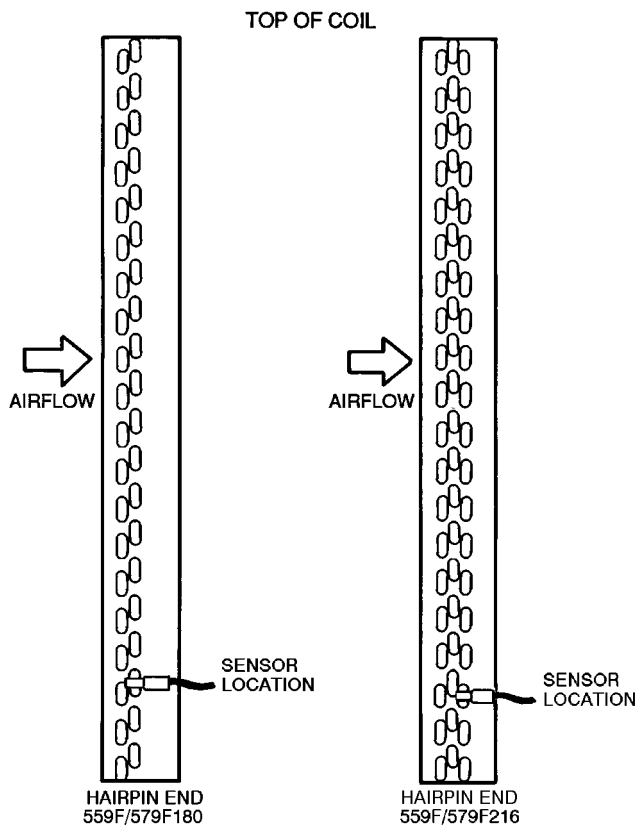
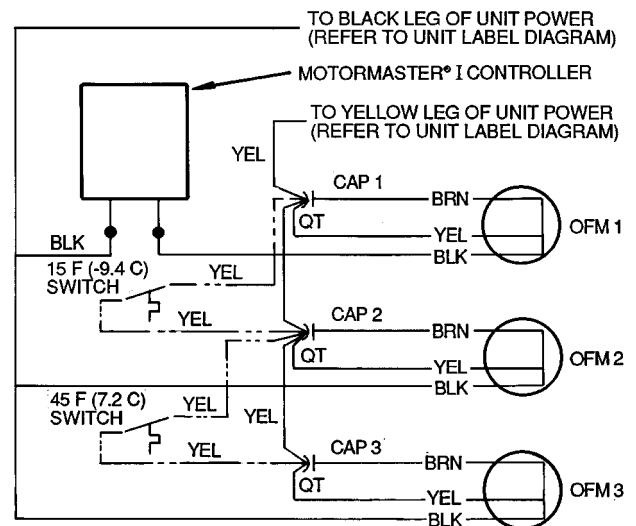


Fig. 4 — Sensor Location on Outdoor Coil Hairpin Bend, 559F and 579F Units

A. 551A, 559F, 579F, and 581A Units

1. Install accessory 0° F low-ambient kit (part no. 389221-701) per instructions supplied with kit.
2. Identify black wire from outdoor fan motor (OFM1). Motor location is shown in Fig. 1. The OFM1 is the fan located on the filter access side of the unit.
3. Trace black wire to wiring harness near head pressure controller location.
4. Splice head pressure controller into black wire from OFM1 in 2 places as shown in Fig. 5 with wirenuts supplied.
5. Replace all panels on unit and turn power on.



LEGEND

- CAP** — Capacitor
- OFM** — Outdoor-Fan Motor
- QT** — Quadruple Terminal
- Accessory Low-Ambient Wiring
- Splice

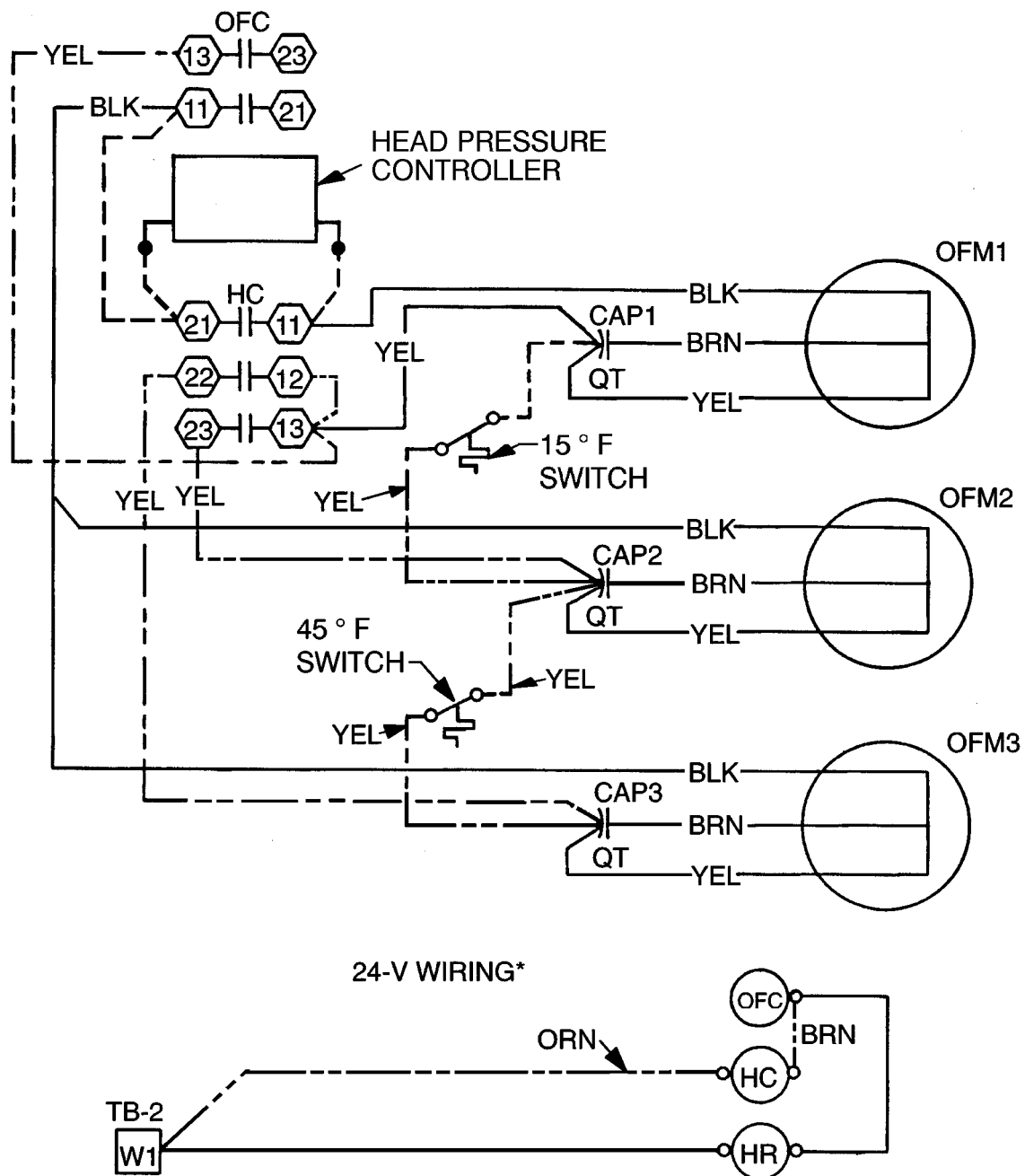
Fig. 5 — Wiring Diagram; 551A, 559F, 579F, and 581A Units

B. 542J Units (See Fig. 6)

1. Install accessory 0° F Low Ambient Kit (part no. CRLOWAMB001A00) per instructions supplied with kit.
2. Locate the black wire from the outdoor-fan motor (OFM1) to terminal OFC-11. The OFM1 is the fan located on the filter access side of the unit. Remove the wire from terminal OFC-11 and reconnect it to terminal HC-11 as shown in Fig. 6.

NOTE: The black leads for OFM2 and OFM3 are labeled with a factory-supplied wire marker.

3. Using field-supplied wire, make a connection between terminals OFC-11 and HC-21.
4. Using 2 field-supplied wires and the factory-supplied wire-nuts, splice one of the 2 head pressure control device leads to terminal HC-21, and the other to terminal HC-11 as shown in Fig. 6.
5. Replace all panels on unit and turn power on.



- LEGEND**
- CAP — Capacitor
 - HC — Heater Contactor
 - HR — Heater Relay
 - OFC — Outdoor-Fan Contactor
 - OFM — Outdoor-Fan Motor
 - TB — Terminal Block
 - QT — Quadraple Terminal
 - — Factory Wiring
 - - - Field Wiring
 - - - Accessory Low-Ambient Wiring
 - Splice

*Accessory low-ambient wiring.

Fig. 6 — Wiring Diagram — 542J Units

CONTROLLER MOUNTING TEMPLATE

CUT ALONG SOLID BORDER LINES TO REMOVE TEMPLATE

